

which contains the Inertial Navigation System (INS) and a Global Positioning System (GPS), a set of Aerosurfaces and an umbilical cover, which allows the JDAM to improve the accuracy of unguided, General Purpose bombs. The JDAM weapon can be delivered from modest standoff ranges at high or low altitudes against a variety of land and surface targets during the day or night. JDAM is capable of receiving target coordinates via preplanned mission data from the delivery aircraft, by onboard aircraft sensors (i.e., FLIR, Radar, etc.) during captive carry, or from a third-party source via manual or automated aircrew cockpit entry. The Guidance Set, when combined with a warhead and appropriate fuze, forms a JDAM Guided Bomb Unit (GBU).

a. (U) The KMU-572F/B is the tailkit for a GBU-38 500LB JDAM.

b. (U) The KMU-559B/B is the tailkit for a GBU-32 1000LB JDAM.

c. (U) The KMU-556B/B is the tailkit for a GBU-31 2000LB JDAM.

9. The Laser JDAM (GBU-54) converts existing unguided free-fall bombs into precision-guided "smart" munitions by adding a new tail section containing Inertial Navigation System (INS) guidance/Global Positioning System (GPS) guidance and adds a semi-active laser seeker. This allows the weapon to strike targets moving at up to 70 mph. The LJDAM weapon consists of a DSU-38 sensor, a JDAM guidance set installed on the bomb body, and a fuze. The DSU-38 consists of a laser spot tracker (same size and shape as a DSU-33 proximity fuze), a cable connecting the DSU-38 to the basic JDAM guidance set, a cable cover, cable cover tie-down straps, modified tail kit door and wiring harness, and associated modified JDAM software that incorporates navigation and guidance flight software to support both LJDAM and standard JDAM missions.

10. The Joint Programmable Fuze (JPF) FMU-139 is a multi-delay, multi-arm and proximity sensor compatible with general purpose blast, frag and hardened-target penetrator weapons. The JPF settings are cockpit selectable in flight when used numerous precision-guided weapons. It can interface with the following weapons: GBU-31, GBU-32, GBU-38, and GBU-54.

11. The AGM-154 JSOW is used by the U.S. Navy, U.S. Marine Corps, and U.S. Air Force, and allows aircraft to attack well-defended targets in day, night, and adverse weather conditions. The AGM-154C carries a BROACH warhead. The BROACH warhead incorporates an advanced multi stage warhead. The JSOW uses the GPS Precise Positioning System (PPS), which provides for a more accurate capability than the commercial version of GPS.

12. The JSOW-C utilizes GPS/INS guidance and an uncooled imaging infrared seeker for terminal guidance, Autonomous Acquisition, and provides a precision targeting, 500-pound-class tandem warhead that is the U.S. Navy's primary standoff weapon against hardened targets.

13. The AGM-154E JSOW-ER adds an engine, and supporting components, to the JSOW C Airframe. The JSOW-ER uses the 300-pound Maverick Warhead due to its smaller size, thereby creating room for fuel, but maintains the same penetration capability as the JSOW C.

14. The AGM-88E Advanced Anti-Radiation Guided Missile (AARGM) weapon system is an air-to-ground missile intended for Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) missions. The AARGM provides suppression or destruction of enemy RADAR and denies the enemy the use of air defense systems, thereby improving the survivability of tactical aircraft.

15. The highest level of classification of defense articles, components, and services included in this potential sale is SECRET.

16. If a technologically advanced adversary were to obtain knowledge of the specific hardware and software elements, the information could be used to develop countermeasures that might reduce weapon system effectiveness or be used in the development of a system with similar or advanced capabilities.

17. A determination has been made that the UAE can provide substantially the same degree of protection for the sensitive technology being released as the U.S. Government. This sale is necessary in furtherance of the U.S. foreign policy and national security objectives outlined in the Policy Justification.

18. All defense articles and services listed in this transmittal have been authorized for release and export to the Government of the United Arab Emirates.

ARMS SALES NOTIFICATION

Mr. RISCH. Madam President, section 36(b) of the Arms Export Control Act requires that Congress receive prior notification of certain proposed arms sales as defined by that statute. Upon such notification, the Congress has 30 calendar days during which the sale may be reviewed. The provision stipulates that, in the Senate, the notification of proposed sales shall be sent to the chairman of the Senate Foreign Relations Committee.

In keeping with the committee's intention to see that relevant information is available to the full Senate, I ask unanimous consent to have printed in the RECORD the notifications which have been received. If the cover letter references a classified annex, then such annex is available to all Senators in the office of the Foreign Relations Committee, room SD-423.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

DEFENSE SECURITY COOPERATION AGENCY, Arlington, VA.

Hon. JAMES E. RISCH,
*Chairman, Committee on Foreign Relations,
U.S. Senate, Washington, DC.*

DEAR MR. CHAIRMAN: Pursuant to the reporting requirements of Section 36(b)(1) of the Arms Export Control Act, as amended, we are forwarding herewith Transmittal No. 21-01 concerning the Air Force's proposed Letter(s) of Offer and Acceptance to the Government of the United Arab Emirates for defense articles and services estimated to cost \$10.4 billion. After this letter is delivered to your office, we plan to issue a news release to notify the public of this proposed sale.

Sincerely,

HEIDI H. GRANT,
Director.

Enclosures.

TRANSMITTAL NO. 21-01

Notice of Proposed Issuance of Letter of Offer Pursuant to Section 36(b)(1) of the Arms Export Control Act, as amended

(i) Prospective Purchaser: Government of the United Arab Emirates (UAE).

(ii) Total Estimated Value:

Major Defense Equipment* \$5.8 billion.

Other \$4.6 billion.

Total \$10.4 billion.

(iii) Description and Quantity or Quantities of Articles or Services under Consideration for Purchase:

Major Defense Equipment (MDE):

Fifty (50) F-35A Joint Strike Fighter Conventional Take-Off and Landing (CTOL) Aircraft.

Fifty-four (54) Pratt & Whitney F-135 Engines (up to 50 installed and 4 spares).

Non-MDE: Also included are Electronic Warfare Systems; Command, Control, Communications, Computer and Intelligence/Communications, Navigational, and Identification (C4I/CNI); Autonomic Logistics Global Support System (ALGS); Operational Data Integrated Network (ODIN); Air System Training Devices; Weapons Employment Capability and other Subsystems, Features, and Capabilities; F-35 unique chaff and infrared flares; reprogramming center access; F-35 Performance Based Logistics; software development/integration; aircraft ferry and tanker support; aircraft and munitions support and test equipment; communications equipment; provisioning, spares and repair parts; weapons repair and return support; personnel training and training equipment; weapon systems software, publications and technical documents; U.S. Government and contractor engineering, technical, and logistics support services; and other related elements of logistical and program support.

(iv) Military Department: Air Force (AE-D-SAC).

(v) Prior Related Cases, if any: None.

(vi) Sales Commission, Fee, etc., Paid, Offered, or Agreed to be Paid: None.

(vii) Sensitivity of Technology Contained in the Defense Article or Defense Services Proposed to be Sold: See Attached Annex.

(viii) Date Report Delivered to Congress: November 9, 2020.

*As defined in Section 47(6) of the Arms Export Control Act.

POLICY JUSTIFICATION

United Arab Emirates—F-35 Joint Strike Fighter

The Government of the United Arab Emirates (UAE) has requested to buy up to fifty (50) F-35A Joint Strike Fighter Conventional Take-Off and Landing (CTOL) aircraft and fifty-four (54) Pratt & Whitney F-135 Engines (up to 50 installed and 4 spares). Also included are Electronic Warfare Systems; Command, Control, Communications, Computer and Intelligence/Communications, Navigational, and Identification (C4I/CNI); Autonomic Logistics Global Support System (ALGS); Operational Data Integrated Network (ODIN); Air System Training Devices; Weapons Employment Capability and other Subsystems, Features, and Capabilities; F-35 unique chaff and infrared flares; reprogramming center access; F-35 Performance Based Logistics; software development/integration; aircraft ferry and tanker support; aircraft and munitions support and test equipment; communications equipment; provisioning, spares and repair parts; weapons repair and return support; personnel training and training equipment; weapon systems software, publications and technical documents; U.S. Government and contractor engineering, technical, and logistics support services; and other related elements of logistical and program support. The total estimated cost is \$10.4 billion.

This proposed sale will support the foreign policy and national security of the United States by helping to improve the security of an important regional partner. The UAE has been, and continues to be, a vital U.S. partner for political stability and economic progress in the Middle East.

The proposed sale of F-35s will provide the Government of the UAE with a credible defense capability to deter aggression in the region and ensure interoperability with U.S. forces. The UAE has demonstrated a commitment to modernizing its military and

will have no difficulty absorbing these aircraft into their armed forces.

The proposed sale of this equipment and support represents a significant increase in capability and will alter the regional military balance.

The prime contractors will be Lockheed Martin Aeronautics Company, Fort Worth, TX; and Pratt & Whitney Military Engines, East Hartford, CT. There are no known offset agreements proposed in connection with this potential sale. However, the purchaser typically requests offsets. Any offset agreements will be defined in negotiations between the purchaser and the contractor(s).

Implementation of this proposed sale may require the assignment of U.S. Government or contractor representatives to the UAE. Implementation of this proposed sale will require multiple trips to the UAE involving U.S. Government and contractor representatives for technical reviews/support, program management, and training over the life of the program. U.S. contractor representatives will be required in the UAE to conduct Contractor Engineering Technical Services (CETS) and Autonomic Logistics and Global Support (ALGS) for after-aircraft delivery.

There will be no adverse impact on U.S. defense readiness as a result of this proposed sale.

TRANSMITTAL NO. 21-01

Notice of Proposed Issuance of Letter of Offer Pursuant to Section 36(b)(1) of the Arms Export Control Act

Annex Item No. vii

(vii) Sensitivity of Technology:

1. The F-35A Conventional Take Off and Landing (CTOL) aircraft is a single-seat, single engine, all-weather, stealth, fifth-generation, multirole aircraft. The F-35A contain sensitive technology, including the low observable airframe/outer mold line, the Pratt & Whitney F135 engine, AN/APG-81 radar, an integrated core processor central computer, a mission systems/electronic warfare suite, a multiple sensor suite, technical data/documentation, and associated software. Sensitive elements of the F35A are also included in operational flight and maintenance trainers. Sensitive elements of the F-35A CTOL aircraft include hardware, accessories, components, and associated software for the following major subsystems:

a. The Pratt and Whitney F 135 engine is a single 40,000-pound thrust class engine designed for the F-35 and assures highly reliable, affordable performance. The engine is designed to be utilized in all F-35 variants, providing unmatched commonality and supportability throughout the worldwide base of F-35 users.

b. The AN/APG-81 Active Electronically Scanned Array (AESA) is a high processing power/high transmission power electronic array capable of detecting air and ground targets from a greater distance than mechanically scanned array radars. It also contains a synthetic aperture radar (SAR), which creates high-resolution ground maps and provides weather data to the pilot, and provides air and ground tracks to the mission system, which uses it as a component to fuse sensor data.

c. The Electro-Optical Targeting System (EOTS) provides long-range detection and tracking, as well as an infrared search and track (IRST) and forward-looking infrared (FLIR) capability for precision tracking, weapons delivery, and bomb damage assessment (BOA). The EOTS replaces multiple separate internal or podded systems typically found on legacy aircraft.

d. The Electro-Optical Distributed Aperture System (EODAS) provides the pilot with full spherical coverage for air-to-air and air-to-ground threat awareness, day/night vision

enhancements, a fire control capability, and precision tracking of wingmen/friendly aircraft. The EODAS provides data directly to the pilot's helmet as well as the mission system.

e. The Electronic Warfare (EW) system is a reprogrammable, integrated system that provides radar warning and electronic support measures (ESM), along with a fully integrated countermeasures (CM) system. The EW system is the primary subsystem used to enhance situational awareness, targeting support and self-defense through the search, intercept, location and identification of in-band emitters and to automatically counter infrared (IR) and radio frequency (RF) threats.

f. The Command, Control, Communications, Computers and Intelligence/Communications, Navigation, and Identification (C4I/CNI) system provides the pilot with unmatched connectivity to flight members, coalition forces, and the battlefield. It is an integrated subsystem designed to provide a broad spectrum of secure, anti-jam voice and data communications, precision radio navigation and landing capability, self-identification, beyond visual range target identification, and connectivity to off-board sources of information. It also includes an inertial navigation and global positioning system (GPS) for precise location information. The functionality is tightly integrated within the mission system to enhance efficiency.

g. The aircraft C4I/CNI system includes two data links, the Multi-Function Advanced Data Link (MADL) and Link 16. The MADL is designed specifically for the F-35 and allows for stealthy communications between F-35s. Link 16 data link equipment allows the F-35 to communicate with legacy aircraft using widely-distributed J-series message protocols.

h. The F-35 Autonomic Logistics Global Sustainment (ALGS) provides a fully integrated logistics management solution. ALGS integrates a number of functional areas, including supply chain management, repair, support equipment, engine support, and training. The ALGS infrastructure employs a state-of-the-art information system that provides real-time, decision-worthy information for sustainment decisions by flight line personnel. Prognostic health monitoring technology is integrated with the air system and is crucial to predictive maintenance of vital components.

i. The F-35 Operational Data Integrated Network (ODIN) provides an intelligent information infrastructure that binds all the key concepts of ALGS into an effective support system. ODIN establishes the appropriate interfaces among the F-35 Air Vehicle, the warfighter, the training system, government information technology (IT) systems, and supporting commercial enterprise systems. Additionally, ODIN provides a comprehensive tool for data collection and analysis, decision support and action tracking.

j. The F-35 Training System includes several training devices to provide integrated training for pilots and maintainers. The pilot training devices include a Full Mission Simulator (FMS) and Mission Rehearsal Trainer (MRT). The maintainer training devices include an Aircraft Systems Maintenance Trainer (ASMT), Ejection System Maintenance Trainer (ESMT), Outer Mold Line (OML) Lab, Flexible Linear Shaped Charge (FLSC) Trainer, F135 Engine Module Trainer, Weapons Loading Trainer (WLT), and other training devices. The F-35 Training System can be integrated, where both pilots and maintainers learn in the same Integrated Training Center (ITC).

k. Other subsystems, features, and capabilities include the F-35's low observable air

frame, Integrated Core Processor (ICP) Central Computer, Helmet Mounted Display System (HMDS), Pilot Life Support System (PLSS), Mission Planning System Environment (MPSE), and publications/maintenance manuals. The HMDS provides a fully sunlight readable, bi-ocular display presentation of aircraft information projected onto the pilot's helmet visor. The use of a night vision camera integrated into the helmet eliminates the need for separate Night Vision Goggles. The PLSS provides a measure of Pilot Chemical, Biological, and Radiological Protection through use of an On-Board Oxygen Generating System (OBOGS) and an escape system that provides additional protection to the pilot. OBOGS takes the Power and Thermal Management System (PTMS) air and enriches it by removing gases (mainly nitrogen) by adsorption, thereby increasing the concentration of oxygen in the product gas and supplying breathable air to the pilot. The MPSE provides a mission planning, mission briefing, and a maintenance/intelligence/tactical debriefing platform for the F-35.

2. The Reprogramming Center is located in the United States and provides F-35 customers a means to update F-35 electronic warfare databases.

3. The highest level of classification of defense articles, components, and services included in this potential sale is SECRET.

4. If a technologically advanced adversary were to obtain knowledge of the specific hardware and software elements, the information could be used to develop countermeasures that might reduce weapon system effectiveness or be used in the development of a system with similar or advanced capabilities.

5. A determination has been made that the United Arab Emirates can provide substantially the same degree of protection for the sensitive technology being released as the U.S. Government. This sale is necessary in furtherance of the U.S. foreign policy and national security objectives outlined in the Policy Justification.

6. All defense articles and services listed in this transmittal are authorized for release and export to the Government of the United Arab Emirates.

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